IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCE

In re Application of:

Hae-Kuk KWAK

Serial No.: 07/888,857 Examiner: E. Frahm

Filed: 27 May 1992 Art Unit: 2108

For: A HIGH SPEED VIDEO COLOR PRINTER FOR PRINTING COLOR IMAGE DATA IN SUCCESSIVE COLUMNS DURING BLANKING INTERVALS OF A VIDEO RASTER SCAN (As Amended)

Appeal No._____

APPEAL BRIEF

The Assistant Commissioner
of Patents
Washington, D.C. 20231

Att: Board of Patent Appeals and Interferences

Sir:

Pursuant to Appellant's earlier filed Notice of Appeal, Appellant hereby appeals to the Board of Patent Appeals and Interferences from the "final" Office action (Paper No. 12) mailed on 26 October 1994.

I. Statement of Real Party in Interest

Pursuant to 37 CFR §1.192 (c)(1)(as amended), the real party in interest is:

SamSung Electronics Co., Ltd.

3425 Maetan-dong, Paludal-ku

Suwon, Kyungki-do, Republic of Korea

II. Related appeals and interferences

Pursuant to 37 CFR §1.192 (c)(2)(as amended), although the real party in interest has other pending appeals and interferences, none of the other pending appeals and interferences are believed to directly affect or be directly affected by, or have a bearing upon the decision of the Board of Patent Appeals and Interferences in this appeal.

III. Status of the Claims

Claims 1 – 32 are pending in this application at the filing of this Brief. All of pending claims 1– 32 stand allowed or allowable over the prior art of record. Claims 9 – 16 stand finally rejected under 35 USC §112, second paragraph. Appellant is appealing from the rejection of claims 9 – 16. Of the appealed claims, claims 9 and 10 are independent claims.

IV. Status of the Amendments

Three Amendments under 37 CFR §1.116(b) have been filed since the final Office action. The first was filed on 19 December 1994. The second was filed on 11 January 1995. The third

was filed on 10 February 1995 along with a substitute specification. Both the third Amendment under 37 CFR §1.116(b) and the substitute specification will be entered upon the filing of this Appeal. Attached with this Appeal is a copy of that substitute specification for the Board's convenience.

V. Summary of the Invention

Conventional video printers require two discrete line memory devices for alternately storing and enabling retrieval of video data for printing during each frame period. The requirement of two discrete line memory devices for printing each frame period of video data is however undesirable because of extra cost and size, and is slow in printing video data in successive columns from a video raster scan, *see* FIG. 4 and pages 7–8 of Appellant's specification.

The present invention however contemplates a novel high speed video printer as shown in FIG. 4 utilizing only a single line memory device 68 in conjunction with a data converter 60 capable of storing each frame of video data comprising two successive fields in different colors and enabling retrieval of successive columns of said stored video data in different colors sequentially during each vertical synchronization and equalization pulse period (6H) of a blanking interval (20H) for each field period (262.5H) [1], to be stored in the single line memory device 68, where each column of video data stored in the single line memory device 68 is subsequently read

[1] See Fig. 8C; pg. 2, lines 10–13; pg. 11, lines 3–9.

and simultaneously printed via a thermal print head 72 during a residual period of the same field period that excludes the vertical synchronization and equalization pulse period (6H) [2].

The high speed video printer shown in FIG. 4 also comprises a digital-to-analog converter 62 and encoder 64 for converting output successive fields of said stored video data in different colors in an analog form for enabling an optional visual display of video data during residual period of the same field period that excludes the blanking interval (20H) [3]. By this arrangement, the columns of video data for each field period can be read and printed much quicker than the conventional video printers. Moreover, the present invention eliminates the requirement of two discrete line memory devices.

FIGs. 5 and 6 illustrate alternative embodiments of the data converter 60 shown in FIG. 4. According to the first embodiment shown in FIG. 5, the data converter 60 comprises three successive dual-port memory devices 82a, 82b, 82c for storing video data in different colors; a recording address generator 74 for generating sequential recording addresses for recording each frame of video data of different colors on the three dual-port memory devices 82a, 82b, 82c via an address selector 80 [4]; a printing address generator 76 for generating sequential printing addresses during each vertical synchronization and equalization pulse period (6H) of a blanking

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[2] See Fig. 8D; pg. 2, lines 12-14; pg. 11, lines 3-9.

[3] See Fig. 8E; pg. 12, lines 12-18.

[4] See pg. 15, lines 8-9; pg. 16, lines 8-13.

interval (20H) for each field period (262.5H), for enabling retrieval of video data stored in columns to be supplied to the single line memory 68 for printing during the succeeding residual period of the same field period that excludes the vertical synchronization and equalization pulse period (6H) [5] ; a monitoring address generator 78 for generating monitoring addresses of odd rows and even rows of said video data to be supplied to a video monitor (not shown) for a visual display during the succeeding residual period of the same field period that excludes the blanking interval (20H) [6].

The second embodiment of the data converter 60 shown in FIG. 6, on the other hand, employs three successive single-output port memory devices 88a, 88b, 88c and an additional output switch 86 as a substitute the more expensive dual-port memory devices 82a, 82b, 82c used in the first embodiment. The principal operating difference between the second embodiment from the first embodiment is that the output switch 86 is used to transmit the retrieved successive columns of video data to be supplied to the single line memory 68 for printing during the vertical synchronization and equalization pulse period (6H) of a blanking interval (20H) for each field period (262.5H) [7], and to transmit the same successive columns of video data to be supplied to the video monitor (not shown) for the remaining period of each field period.

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5 See Figs. 8C-8D; pg. 15, lines 9-11; pg. 17, lines 3-9.

6 See Fig. 8E; pg. 15, lines 11-13; pg. 17, lines 10-20; pg. 18, lines 1-3.

7 See Fig. 8C; pg. 20, lines 7-9.

VI. Issues

1. Whether the drawings are objectionable under MEPE §608.02(g) because FIG. 3 was not labeled as "prior art"?

2. Whether the disclosure is objectionable under MEPE §608.01(c) because the description of FIGs. 1 – 3 regarding conventional art was not placed in the "Background of the Invention" section of the application.

3. Whether claims 9 through 16 are definite under 35 USC §112, second paragraph?

VII. Grouping of Claims

For the purposes of the rejection under 35 U.S.C.§112, second paragraph, claims 9 – 16 stand or fall independently of each other under 37 CFR §1.192(c)(7) and (18) for the reasons set forth in the argument below.

VIII. Arguments

1. FIG. 3 is not "prior art" and should not be labeled as "prior art"

In the "final" Office action (Paper No. 12) dated on 26 October 1994, and as confirmed by the Advisor action (Paper No. 21) dated on 3 March 1995, the Examiner objected to the drawings,

> "because Figure 3 is not designated by a legend such as `Prior Art.' The legend is **necessary** in order to clarify what applicant's invention is. MPEP §608.02(g). Correction is required." Examiner's comments, page 2.

This requirement is incorrect for the following reasons.

First, MPEP §608.02(g) merely suggests that labels accompanying some of the drawings are not inappropriate. Second, neither the statute, the Code of Federal Regulations nor other authority supports the requirement. Third, FIG. 3 is not itself believed to constitute "prior art" as that term is defined by either 35 USC §102 or 35 USC §103. Fourth, FIG. 3 is simply an abstract representation of the art prepared by Appellant in an effort to illustrate and thereby provide a written description under the first paragraph of 35 U.S.C. §112 of Applicant's discovery of problems in the art; this discovery is itself, together with Appellant's abstraction of the art represented by FIG. 3, are part of the written description of Appellant's invention.

In view of the above, any requirement that FIG. 3 must be labeled as "prior art" is wholly improper, and must be withdrawn.

2. Description of FIGs. 1 – 3 should correctly be placed in the "detailed description" section of the application.

In the "final" Office action (Paper No. 12) dated on 26 October 1994, and as confirmed by the Advisor action (Paper No. 21) dated on 3 March 1995, the Examiner objected to the disclosure,

> "because ... the description of figures 1–3 of a conventional color video printer at pages 3–8 of the detailed description of the invention section of the specification should be in the "background of the invention" section. This is due to the fact that figures 1–3

> contain prior art, and prior art should be discussed in the background of the invention section of the specification as specified by MPEP §608.01(d). Furthermore, only a detailed description of the invention should be in the detailed description of the invention section; see MPEP 608.101(g). Appropriate correction is required."

This requirement is also incorrect for the following reasons.

First, neither the statute, the Code of Federal Regulations nor other authority requires Appellant to specifically describe the detailed problems of the conventional color video printer in the "background of the invention" section. In fact, 37 CFR §1.77 simply requires an application to arrange in the order of:

> (a) Title of invention;
> (b) [Reserved];
> (c) Cross-reference to related applications;
> (d) brief summary of the invention;
> (e) Brief description of the ... drawings, if there are drawings;
> (f) Detailed description.

Detailed description, on the other hand, is defined under 37 CFR §1.171(a) as:

> "a written description of the invention **or** **discovery** and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it most nearly connected, to make and use the same."

The description of detailed problems of the conventional color video printer shown in FIGs. 1 –

3 of the drawings is nothing more than a written description of the **discovery** of the source of the problems in the art, and is in itself part the invention. As is well known in patent practice, the solution to a problem, once known, may often seem in hindsight obvious even when the recognition of the problem itself or of the source of the problem is not. A patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. See *Eibel Process Co. v. Minnesota and Ontario Paper Co.*, 261 US 45 (1923); *In re Peehs*, 612 F.2d 1287, 204 USPQ 835 (CCPA 1980). For this reason, the detailed problems of the conventional color video printer should appropriately be described in the "detailed description" of the invention, rather than the "background of the invention" as is asserted by the Examiner.

Second, although MPEP §608.01(d) prefers Appellant to describe the detailed problems of the prior art in the "background of the invention" section, Appellant is not mandated to follow the preference of MPEP. As a matter of law, the MPEP in itself, as is expressly stated in its Foreword, does not have either the force of law or the force of the Patent Rules of Practice (37 CFR). The MPEP is a looseleaf training and instruction manual for examiners which is continually revised in piecemeal fashion and it is not surprising to find inconsistencies in it. *See Racing Strollers Inc. v. TRI Industries Inc.* 11 USPQ2d 1300 (CAFC 1989).

Consequently, in view of the above reasons and the fact that all pending claims are in condition for allowance, Appellant respectfully requests the Board to refuse sustaining this

objection and pass the application to issue.

3. Claims 9 – 16 are definite under 35 USC §112, second paragraph.

In the "final" Office action (Paper No. 12) dated on 26 October 1994, the Examiner initially rejected claims 1 – 16 and 34 – 38 under 35 U.S.C. §112, **second** paragraph. However, claims 1 – 8 and 34 – 38 have since been allowed on the basis of Appellant's Amendment under 37 CFR §1.116(b) filed on 10 February 1995. Consequently, the only claims 9 through 16 rejected are now under 35 U.S.C. §112, **second** paragraph, are claims 9 through 16, with only independent claims 9 and 10 being rejected under 35 U.S.C. §112, **second** paragraph; the remaining dependent claims 11 – 16 were rejected by virtue of their dependency upon the rejected claim 10.

Specifically, in the Advisory action (Paper No. 21) dated on 3 March 1995, the Examiner rejected claims 9 and 10 for two reasons: the first reason given was that the phrase "means for storing ..., reading ... and applying ..." as recited in claim 9, and the phrase "data conversion means for storing ... and selectively reading" as recited in claim 10 are indefinite because:

> "[they are] not supported by recitation in the claims of sufficient structure to accomplish the function."

The second reason was that claim 10 is indefinite because:

> "The recitation of more than one function for the data conversion means makes the structure indefinite since it is not clear what part of the data conversion means is performing each of the 2 different functions."

Both reasons averred by the Examiner are wrong. This rejection is without merits and should be reversed.

First, 35 USC §112, *second* paragraph, expressly states:

> "[T]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the **applicant regards as his invention**."

From its plain language, 35 USC §112, *second* paragraph empowers Appellant to distinctly claim the subject matter which Appellant, not the Examiner, regards as his invention. The *sixth* paragraph of 35 USC §112, also expressly states:

> "An element in a claim for a combination may be expressed as a means or step for performing *a specified function **without** the recital of structure, material, or acts in support thereof*, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

Consequently, as mandated by 35 USC §112, *second* and *sixth* paragraphs, claims 9 and 10 need not recite "sufficient structure to accomplish the function" as is asserted by the Examiner. Claims 9 and 10 could certainly be written by Appellant in a means-plus-function format or any other format as long as they particularly point out and distinctly claim the subject matter which Appellant regards as his invention and as long as the specification supports such claims.

For example, claim 9 on appeal could define a high speed color video printer as comprising:

> "**means** for *storing* digital video signals in an internal memory as video data, *reading* a column unit of said video data stored in said internal memory ... and *applying* a field unit of said video data for a visual display providing a variable visual image ...
>
> **selection means** for selectively providing one color of said video data from said column unit of said video data read from said internal memory ...
>
> **line memory means** for storing said one color of said video data from said column unit of said video data provided from said selection means ...
>
> **means** for enabling printing said one color of said video data from said column unit of said video data ... and
>
> **digital-to-analog converter means** for converting said field unit of said video data into analog signals for enabling said visual display of said video data."

Separately, claim 10 could also define a high speed color video printer as comprising:

> "**data conversion means** for *storing* said color video data in an internal memory, and for *selectively reading* said color video data stored in said internal memory in columns corresponding to pixels of a raster scan of an interlaced video field;
>
> **line memory means** for storing said color video data selectively read from said internal memory in columns; and
>
> **printer means** for column-by-column printing said color video data selectively read from said line memory means."

Both "**means** for *storing* digital video signals ... *reading* a column unit of said video data ... and *applying* a field unit of said video data for a visual display providing a variable visual image" as recited in claim 9, and "**data conversion means** for *storing* ... and *selectively reading* ..." as recited in claim 10 are fully supported by the data converter 60 disclosed in Appellant's

specification. Specifically, the data converter 60 as shown in either FIG. 5 or FIG. 6 comprises a plurality of memory devices 82a, 82b, 82c, a recording address generator 74, a printing address generator 76, and a monitoring address generator 78. The recording address generator 74 as described in Appellant's specification is used to enable storing of said digital video signal. Similarly, the printing address generator 76 is used to enable [selective] reading of a column unit of said video data, and the monitoring address generator 78 is used to optionally apply a field unit of said video data for a visual display.

The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification ... If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, §112 demands no more. *Miles Laboratories, Inc. v. Shandon Inc.*, 997 F.2d 870, 27 USPQ2d 1123 (Fed. Cir. 1993). When claims 9 and 10 are read in light of the specification, one skilled in the art would understand the metes and bounds of these claims without any question of ambiguities with respect to the meaning of the phrase "means for storing ... reading ... and applying ..." as defined in claim 9 and the meaning of the phrase "data conversion means for storing ... and selectively reading ..." as defined in claim 10 pending on appeal.

Second, the final Office action, which endeavors to support the rejection of claim 10 with an assertion that:

> "The recitation of more than one function for the data conversion means makes the structure indefinite since it is not clear what part

> of the data conversion means is performing each of the 2 different functions"

is also wrong. Appellant is not obligated under 35 USC §112, *sixth* paragraph to specify what part of the "data conversion means" performs each of the two different functions of "storing said color video data in an internal memory" and "selectively reading said color video data stored in said internal memory" as defined in claim 10.

As a matter of law, the *sixth* paragraph of 35 USC §112 simply does not limit the definition of an element to a single statement of function to a single statement of function performed by that component; it has always been permissible to subdivide that function into its component sub-functions. This is a question of breath, not of indefiniteness. Consequently, under U.S. practice it is permissible to either define Appellant's "data conversion means" to perform only one specified function, or to instead define "means" as performing its "*specified function without the recital of structure, material, or acts in support thereof.*" The fact that the recited "means" in claim 10 performs more than one specified function does not render it indefinite under 35 USC §112, *second* paragraph. The two specified functions of the "data conversion means" as defined in claim 10 are: the "**storing** said color video data in an internal memory" and the "**selectively reading** said color video data stored in said internal memory in columns corresponding to pixels of a raster scan of an interlaced video field." These two functions are clearly supported by the data converter 60 disclosed in Appellant's specification, see FIGs. 5 and 6 with respect to the "memory devices 82a, 82b, 82c," the "recording address

generator 74," and the "printing address generator 76."

Moreover, the practice of writing a particular means in a means-plus-function format as comprising more than one function has long been accepted by the Office. The Board's attention is kindly invited to *In re Kelley*, 134 USPQ 397, where the Court stated that:

> "We see no reason why a single structural element....which performs two separate functions, cannot support a claim reciting broadly these separate functions,"

as long as the functions are different and are supported by the specification. See also *Palmer v. United States*, 163 USPQ 250. The vitality of *In re Kelley* is evident in the allowed claims in U.S. Patent No. 5,291,313 issued to Kim, U.S. Patent No. 5,216,514 issued to Hong et al., U.S. Patent No. 5,115,320 issued to Ebihara et al., all three of which were cited by the Examiner during examination of this application.

Specifically, the Board's attention is directed to the issued claim 1 of the Kim patent which requires "microcomputer means" to perform more than two functions (*i.e.*, **for calculating** an average value ... **for comparing** said average value with a predetermined value ... and for switchably connecting ...)

Similarly, claim 1 of the Hong patent also calls for "video processor means" for performing a first function, *i.e.*, "processing an input video signal" and for performing a second function, *i.e.*, "selectively generating an output"). Consequently, in view of the above, there is

no statutory basis to sustain this rejection.

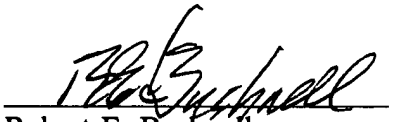
In summary, Applicant believes that independent claims 9 and 10 and their respective dependent claims 11 – 16 are deemed definite to satisfy the requirement of 35 USC §112, *second* paragraph.

VII. Conclusion

Accordingly, Appellant respectfully requests the Board refuse to sustain the outstanding rejection based upon §§112, second paragraph.

A fee of $280.00 is incurred by this Appeal Brief. The check of Applicant's attorney payable to the order of the Commissioner of Patents & Trademarks and drawn in this amount, accompanies this paper. Should this check be lost or misplaced, the Commissioner is authorized to charge Deposit Account No. 02–4943 and advise the undersigned attorney accordingly.

Respectfully submitted,



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APPENDIX:

Claims on Appeal

9. (Twice Amended) A high speed color video printer, comprising:

means for storing digital video signals in an internal memory as video data, reading a column unit of said video data stored in said internal memory during a synchronizing and equalizing pulse period within a blanking interval of a field period, and applying a field unit of said video data for a visual display providing a variable visual image during a remainder of said field period that excludes said blanking interval;

selection means for selectively providing one color of said video data from said column unit of said video data read from said internal memory during said synchronizing and equalizing pulse period;

line memory means for storing said one color of said video data from said column unit of said video data provided from said selection means during said synchronizing and equalizing pulse period;

means for enabling printing said one color of said video data from said column unit of said video data when said one color of said video data from said column unit of said video data is read from said line memory means during a remainder of said field period that excludes said synchronizing and equalizing pulse period; and

digital-to-analog converter means for converting said field unit of said video data into analog signals for enabling said visual display of said video data.

10. (Twice Amended) A high speed color video printer, comprising:

means for providing color video data from a video signal;

data conversion means for storing said color video data in an internal memory, and for selectively reading said color video data stored in said internal memory in columns corresponding to pixels of a raster scan of an interlaced video field;

line memory means for storing said color video data selectively read from said internal memory in columns; and

printer means for column-by-column printing said color video data selectively read from said line memory means.

11. (Amended) The high speed color video printer of claim 10, further comprising printing address generating means for generating printing addresses for enabling selective reading of said color video data from said internal memory during a vertical synchronizing and equalizing pulse period of a blanking interval of a first field period, and enabling said printer means to print a first of said columns of said color video data selectively read from said internal memory during a remainder of said first field period that excludes said vertical synchronizing and equalizing pulse period.

12. (Amended) The high speed color video printer of claim 10, further comprising printing address generating means for generating printing addresses for enabling said printer

means to print a number n of said columns of said color video data selectively read from said internal memory during a number n field period, where n is an integer ranging sequentially from 1 to a number of columns in a frame.

13. (Twice Amended) The high speed color video printer of claim 10, further comprising display means for displaying said color video data selectively read from said internal memory.

14. (Amended) The high speed color video printer of claim 13, wherein said data conversion means further comprises monitoring address generating means for providing monitoring addresses of odd rows and monitoring addresses of even rows of said color video data stored in said internal memory for enabling field units of said stored color video data to be displayed on said display means.

15. (Twice Amended) The high speed color video printer of claim 14, wherein after said data conversion means has selectively read said color video data for printing, said data conversion means first provides said odd rows of an odd field of a frame of said color video data to said display means for displaying said odd rows of said odd field of said frame during a remainder of an odd field period of said odd field and second provides said even rows of an even field of said color video data to said display means during a remainder of an even field period of said even field.

16. (Twice Amended) The high speed color video printer of claim 10, wherein said internal memory comprises:

a first discrete memory for exclusively storing red chrominance components of said color video data;

a second discrete memory for exclusively storing green chrominance components of said color video data; and

a third discrete memory for exclusively storing blue chrominance components of said color video data.